

ABSTRACT OF THE DISCLOSURE

Embodiments of the present invention relate to methods of forming powder metals materials and parts. More specifically, certain embodiments of the present invention relate to methods of forming powder metals materials and parts by densifying at least a portion of a surface of the materials and/or parts after sintering and prior to densifying one or more core regions of the materials and/or parts. Other embodiment provide powder metal parts, such as gears and sprockets, having surface regions that are uniformly densified to full density to depth ranging from 0.001 inches to 0.040 inches, and core regions that can have at least 92 percent theoretical density and further can have essentially full density, or full density. Still other embodiments relate to brazed, welded, plated and gas-tight powder metal parts and components that can be made in accordance with the various non-limiting methods disclosed herein.